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14. ABSTRACT

Theater Ballistic Missile Defense (TBMD) is a challenging mission area for any Theater Combatant or Joint Task Force Commander, and one he must focus on to mitigate the strategic effects this "terror" weapon can impart. The current TBMD organization in theater is fractured by segregating responsibilities to the Commanders of the various Areas of Operations resulting in inefficient use of TBMD's scarce resources. This paper recommends an Area Ballistic Missile Defense Commander (ABMDC) be created under the Joint Forces Air Component Commander (JFACC) to centrally plan the five elements of TBMD promoting effectiveness and synchronization of TBMD operations.

In addition, MDA plans to field new TBMD systems in FY04. These systems bring new capabilities that if harnessed correctly through a near real-time Situational Awareness picture results in a synergistic effect for TBMD. This capability currently does not exist.

The Airborne Laser (ABL) can perform this role without the SA. It's inherent capabilities allow it to perform TBMD Active Defense Command and Control resulting in many of the benefits of a near real-time SA.

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Area Ballistic Missile Defense Coordinator and the Airborne Laser:
Creating Ballistic Missile Defense Unity of Effort

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

Theater Ballistic Missile Defense (TBMD) is a challenging mission area for any Theater Combatant or Joint Task Force Commander, and one he must focus on to mitigate the strategic effects this "terror" weapon can impart. The current TBMD organization in theater is fractured by segregating responsibilities to the Commanders of the various Areas of Operations resulting in inefficient use of TBMD's scarce resources. This paper recommends an Area Ballistic Missile Defense Commander (ABMDC) be created under the Joint Forces Air Component Commander (JFACC) to centrally plan the five elements of TBMD promoting effectiveness and synchronization of TBMD operations.

In addition, MDA plans to field new TBMD systems in FY04. These systems bring new capabilities that if harnessed correctly through a near real-time Situational Awareness picture results in a synergistic effect for TBMD. This capability currently does not exist.

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Table of Contents

Thesis: Theater Ballistic Missile Defense (TBMD) is a daunting challenge that requires a dedicated, focused and seamless joint effort. TBMD consists of five elements starting with Intelligence Preparation of the Battlefield, and continues with Attack Operations, Active Defense, Passive Defense and Command, Control, Communications, Computers and Intelligence (C4I). All five elements need to be integrated to maintain Unity of Command/Effort but especially Active Defense through centralized planning by an Area Ballistic Missile Defense Coordinator dedicated to TBMD via the Joint Force Air Component Commander (JFACC). The Airborne Laser system should serve as a real-time TBMD Active Defense coordinator.

INTRODUCTION

> "Theater missiles are weapons that possess both military threat and political intimidation characteristics"
>
> Doctrine for Joint Theater Missile Defense,
> Joint Pub 3-01.5[1]

Towards the waning days of the Gulf War, a single Scud went undetected and hit the military barracks in Dhahran killing 28 airmen and wounding 99 others.[2] It was the single worst engagement of the War. In addition, Scuds were launched at Israel causing widespread panic and almost rupturing the coalition arrayed against Saddam Hussein. That coalition was only saved by President Bush's direct intervention.

The Gulf War illustrated only too well how Theater Ballistic Missiles (TBMs) provide a strategic capability to an otherwise militarily weak enemy. It provided Saddam's only successful attack and the most effective element of his strategy. Other nations noticed the great impact these relatively cheap weapons had against the most powerful nation in the world. If we were to then add a nuclear, chemical or biological warhead creating a Weapon of Mass

Destruction (WMD) you would then have a truly strategic weapon with which to influence an entire region. As a result, an Operational-level Commander must plan and execute an effective TBMD campaign or face strategic effects from a largely tactical action.

In Desert Storm, just as Deputy SECSTATE Eagleburger and DEPSECDEF Wolfowitz were landing in Israel to persuade the Israelis to stay out of the war, General Schwarzkopf was telling the press that Scuds were not a militarily significant weapon. This prompted then SECDEF Cheney to announce in an open meeting "As long as I'm SECDEF, the Defense Department will do as I tell them. The number one priority is to keep Israel out of the war".[3]

No longer can a Commander adopt a Schwarzkopf-like attitude. The astute employment of TBMs--either the threatened or actual use--could force a Commander to focus on these weapons even if they will not affect his operation directly. He must account for TBMs in his Operations Plans especially if the enemy has or is believed to have a WMD capability married to those TBMs. In that case, the Commander must account for virtually all enemy TBMs.

Theater Ballistic Missiles are proliferating and becoming more dangerous. They are being purchased or developed by various nations around the globe; they are getting more accurate; and they are reaching farther than ever before. Thus, the likelihood is increasing that we will face an even larger TBM threat in future operations. As a result, it is incumbent upon us to develop an effective and efficient method with which to conduct TBM Defense or face unexpected strategic consequences as Schwarzkopf did in the Gulf War.

The Nature of the Threat

Proliferation: TBMs are growing in quantity, quality and range. Numerous nations are either procuring them or are developing them in-house. Over 20 nations are believed to possess TBMs with many more predicted to obtain them within the next five years. They provide a

relatively cheap and cost-effective alternative to Air Power. For example, an F-16 with initial spares costs approximately $50M. At the same time, a nation seeking regional influence or hegemony can procure approximately 20 Scuds with two mobile launchers at the same cost.[4] As a result, the demand for TBMs has grown and numerous cash-starved nations like Russia and North Korea are only too happy to provide a supply.

Range: TBM ranges continue to increase. Just as Iraq doubled the ranges of their Scud Bs with the Al Hussein variants, some nations are extending their Scud-like TBMs or have programs underway to develop indigenous Medium Range Ballistic Missiles (MRBM). An MRBM is defined to have a range between 1000 to 3000 kms.[5] This is enough for a nation such as Iran to reach our NATO Allies and easily allows North Korea to hit virtually any target in Japan.[6] In addition, nothing would prevent these nations from then marketing their product as North Korea has already done. This further complicates a Commander's problem, as now he must face a threat that can easily reach outside of traditional Joint Operating Area (JOA) boundaries.

Quantity: TBMs are cheap and provide an asymmetric capability for a nation to "level" the playing field with a military power. Thus, they are being mass produced. North Korea, for example, is believed to have literally hundreds of TBMs well within range of Seoul and some have the ability to hit Japan.[7] But for efficiency, most nations in possession of TBMs have high TBM to Transport Erector Launcher (TEL) ratios, typically a ratio of 10 missiles per launcher.[8]

WMD: Just as TBMs are spreading, so are WMD capabilities and some of these nations are placing such warheads on their TBMs. The belief, alone, that TBMs contain WMD induces hysteria and can have as much impact as actually having that capability. Israel treated over 1000 people due to the Scud attacks in Desert Storm, but only two died. Approximately 75% of the casualties resulted from inappropriate actions or reactions on the part of the victims

including 544 patients due to anxiety and 230 from atropine overdose.[9] These "terror weapons" do not need to be real to cause the desired effect.

Threat Summary: First, TBMs are proliferating around the world because they are a relatively cheap assymetric response to the US's overwhelming conventional capability thereby increasing the probability we will face this kind of threat in the future. Second, their ranges are growing and can go beyond the traditional bounds of a Joint Operational Area (JOA) increasing the Joint Force Commander's imperative to defeat the TBM threat immediately. Third, indigenous TBM programs are rising and cash-starved traditional powers are selling TBMs openly. As a result, TBM quantities are increasing, complicating further the Combatant Commander's attempts to ensure their defeat. Lastly, a WMD capability, or threat of WMD, forces the Commander to attempt to defeat all enemy TBMs.

Background of TBM Defense (TBMD)

The Gulf War demonstrated clearly our inability to deal with TBMs. As a result, DoD initiated numerous studies and programs to address this deficiency. The expensive weapon system development programs grab the headlines but, in addition, DoD has invested heavily in the methodology for the conduct of TBMD.

Doctrine: TBMD lessons learned from the Gulf War were analyzed, studied and debated. This eventually resulted in Joint Doctrine Publications: Countering Air and Missile Threats (JP 3-01) and Joint Theater Missile Defense (JP 3-01.5). The Joint Doctrine lays-out five elements for conducting TBMD: Intelligence Preparation of the Battlefield (IPB), Attack Operations, Active Defense, Passive Defense and C4I.[10]

IPB is extremely important for TBMD. It provides targets for Attack Operations, it describes the threat and necessary Passive Defense measures, and it assists in creating the

Defended Assets List (DAL) and the distribution of limited Active Defense resources.

Attack Operations entail attacking TBMs before launch, as well as their launchers, infrastructure, storage areas, logistics facilities and command and control systems. All such operations should be planned as part of Offensive Counterair Operations under the JFACC.

Active Defense means defeating the TBM after launch.

Passive Defense involves measures taken to protect personnel, systems and infrastructure against a successful attack such as warning, dispersal, hardening, recovery, etc. Passive Defense also includes deception activities to hinder enemy targeting.

In addition to describing the five-element process, Joint Doctrine describes other key features to TBMD. First, doctrine stresses the desire to defeat the TBM before or very shortly after launch.[11] The benefits of defeating TBMs early are obvious: a) terminal defense, even with the new US systems, is challenging. b) Implementation of Passive Defense measures can have an impact on operations. For example, awaiting chemical/biological all clear could restrict operations in key areas. Another example is how MOP-4 gear hinders our troops effectiveness. c) Even when TBMs are engaged successfully, the debris can cause large destruction.

Second, from end-to-end, TBMD is to be completed jointly i.e. by the various services in theater. Some of the features like Attack Operations and Active Defense fall under the JFACC, but much of TBMD is delegated to the Commander of each Area of Operations. Thus, although Attack Operations are predominantly planned by the JFACC as a portion of Offensive Counterair (OCA) operations, if targets reside beneath the Fire Support Control Line (FSCL), the responsible Land Component Commander engages them. This is equally true for targets in other Areas of Operations. In addition, each Area Commander accomplishes Passive Defense separately.[12]

Third, Defensive Counterair (DCA) is planned by the Area Air Defense Commander (AADC)--normally also the JFACC.[13] Thus, TBMD systems are usually positioned by the JFACC. The TBMD systems positioning could be effective for air breathing threats, but inefficient for TBMD. For example, placing Patriot batteries at military bases for aircraft or cruise missile defense, but leaving open major population centers to TBM attacks.

TBMD Systems: Many of the nation's research and development investments are now coming to fruition. Operation Iraqi Freedom saw the use of the recently upgraded Patriots (PAC-3s). In addition, the Missile Defense Agency plans to field in FY04 a boost-phase, the Airborne Laser (ABL), and midcourse, the Theater High Altitude Area Defense (THAAD--it also provides a terminal capability) and Aegis/TMD, engagement capabilities. These systems, together, will give the Commander the opportunity to shoot at a TBM at any point in its trajectory providing a robust Active Defense capability.[14]

A boost-phase capability allows you to engage a TBM while it is rising in its powered portion of flight. The mid-course capability allows you to engage from shortly after the TBM's engine cut-off until it begins descent, while the PAC-3 and THAAD provides a terminal engagement capability. The boost-phase and mid-course systems, because they shoot the TBMs early, can defend large areas while the PAC-3 system provides point defense. In addition to their TBMD capability, these weapons also serve in traditional Defensive Counterair (DCA) functions of defeating enemy aircraft and cruise missiles whose trajectories are entirely within the atmosphere.

Findings: <u>First finding</u>: TBMD requires vertical integration in addition to horizontal. The Joint Doctrinal elements promote horizontal integration, but by not vesting a single authority with TBMD responsibility hinders vertical integration. (Horizontal integration refers to coordinating

and synchronizing within a TBMD element while vertical integration refers to coordinating and synchronizing across all five TBMD elements.)

The TBM threat has shown to be large, difficult to defend and have significant strategic effects. A single authority or Area Ballistic Missile Defense Coordinator (ABMDC) working for the JFACC could focus on TBMD to ameliorate these effects while still maintaining DCA efficiencies and unity of effort by maintaining all DCA resources under the JFACC. An ABMDC focus would develop synergies between the five TBMD elements, promote timing and synchronization of the various TBMD operations, more properly define the risk areas, and forcefully advocate TBMD requirements--in other words, vertical integration of TBMD.

The ABMDC would achieve these benefits by: a) Developing and proposing candidates for the TBM Defended Assets List (DAL). The extended range of TBMs--beyond the normal ranges of air breathing threats like cruise missiles--demands that the JFACC and JTF Commander understand and are sensitive to the TBMD objectives and priorities. In addition, this will better position the ABMDC when he argues for a differing placement of TBMD assets in competition with the AADC's desires. In addition, as additional nations develop ICBM-type capabilities, the ABMDC would be an appropriate echelon to coordinate with NORTHCOM and STRATCOM forces for defense of the homeland.

b) Developing TBMD specific Rules of Engagement (ROE). A TBM signature is vastly different than that of other counterair threats. As a result, separate ROE developed by an "expert" could vastly enhance TBMD performance as opposed to hindering it with inappropriate ROE.

c) Centralizing TBMD planning across the five elements and the different Areas of Operations while maintaining decentralized execution would ensure a cohesive plan is

developed which; coordinates the numerous assets available to conduct TBMD such as special forces, ground and air fires for Attack Operations (including time critical targets), ensures optimum placement of Active Defense systems; coordinates Passive Defense measures; and develops a C4I system to communicate to theater Commanders and assets. This will ensure timing and synchronization of TBMD operations providing a synergy of effects to disrupt enemy TBM operations.

d) Mitigating risk areas. The ABMDC by developing and focusing on a TBMD plan can better identify and advocate risk mitigations i.e. the limited passive defense resources would be better apportioned/positioned to protect the less defended TBM impact points.

In Korea, Seventh AF has developed a pseudo-ABMDC by creating a Theater Missile Operations (TMO) Division under the JFACC. This section is given the freedom to develop TMO plans to counter the enormous North Korean TBM threat. Exercises have shown outstanding results as the coordinated plans have yielded synergistic results from the individual TBMD systems vice the discrete results from disjointed plans.[15]

Lastly, STRATCOM's draft plans include centralizing all TBMD at STRATCOM who will then provide support to the Theater Combatant Commanders as required.[16] My proposal maintains the ABMDC under the Theater Combatant Commander, but the ABMDC would coordinate with STRATCOM to ensure US territorial defense if the threat so deems it. Rationale for not moving TMD responsibility from the Theater Combatant Commander is: a) the CIA estimates the homeland threat from a nation other than Russia or China to be at least the year 2010 for North Korea and 2015 for Iran;[17] b) any attempt by a staff outside the theater to impose requirements on an on-site Theater Commander will be looked at with a jaundiced eye at best; c) the on-site commander can best apportion his limited resources for the myriad of

tasks he attempts to satisfy. As a result, centralizing all TBMD resources under STRATCOM now is premature, at least until a legitimate rogue threat arises in the 2010-2015 timeframe.

Second finding: New TBMD systems will be introduced in 2004 for a future JTF Commander's use. These systems, namely Navy's Aegis/Theater Missile Defense, Army's THAAD and Air Force's Airborne Laser were developed separately in a stovepipe manner to address a particular aspect of TBMD. Little to no direction or guidance was provided to the developers to levy TBMD systems requirements to the individual weapon systems to ensure interoperability and integration. As a result, the JTF Commander will depend on the ABMDC to create a TBMD architecture from the individual systems provided. The ABMDC construct combined with the capabilities of the new weapon systems is a perfect opportunity to further vertical integration of TBMD exploiting enemy TBM Operations vulnerabilities and reacting/adapting more swiftly to unexpected or time critical targets/opportunities. The critical element for taking advantage of this opportunity is TBMD Command and Control.

TBMD Command and Control

Command and Control is the base from which all military activities are conducted. The same is true for TBMD. The new TBMD weapon systems will bring unique capabilities that did not previously exist, but they will also bring unique challenges. TBMD C4I must link the various autonomous systems together to provide an effective and efficient Command and Control network from which a synergistic TBMD can be accomplished. By exposing and correcting known TBMD weak areas, a C4I organization can be envisioned that, when combined with the ABMDC, will provide a superior level of TBMD.

Attack Operations: Joint Doctrine states the most effective and desirable method to defeat TBMs is to attack them prior to launch or immediately following launch. In addition to

being the most desirable method of defeating TBMs, Attack Operations could be the most effective and efficient method. As stated in the TBM threat description, most nations carry high TBM to TEL ratios. This is also true with respect to their TBM infrastructure. It is much more efficient to destroy one TEL or an associated TBM infrastructure/radar/etc. than it is to have to destroy 10 TBMs after launch. Attack Operations can exploit this vulnerability.

Currently, IPB provides information for Attack Operations which are folded into the JFACC's OCA plan. This results in disruptive effects to the enemy, but does not eliminate their capability. Desert Storm showed how our strikes hindered Iraqi TBM Operations. The Iraqi Scud launch rate was 35 percent lower in the Gulf War then in the Iran-Iraq War despite Iraq having more TBMs and launchers in 1991 than they had against Iran in 1980-88.[18] The US shortcoming in Desert Storm was being able to identify the launch point in order to direct assets to track and kill the launchers--time critical targets.

MDA plans to field the Airborne Laser (ABL) along with the THAAD and Aegis-TMD in FY2004. The ABL will autonomously detect, track and kill TBMs in their boost-phase. The ABL has shown in Roving Sands Exercises (TBMD bi-annual exercise held at Ft Bliss) and in other simulations, its precise and immediate sensor capabilities.[19] Due to the requirement for ABL to shoot TBMs in the boost-phase, the ABL develops a very-fine resolution track from which an exact launch point can be developed. This data is passed to theater commanders and systems instantaneously. From this information, JSTARS or other ISR systems can be focused on the launcher for tracking and attack assets can be immediately tasked to eliminate the launcher. To accomplish this handoff requires the ABMDC to preplan such contingencies and to obtain authority from the JFACC for priority taskings and to ensure network connectivity.

Inventory Management: Rogue nations continue to build-up their TBM inventories to

develop further their coercive influence capabilities. This explosion in TBM quantities provides a problematic challenge to the Commander. For example, North Korea has literally hundreds of TBMs;[20] it has been predicted that North Korea would fire a large number of them at the initiation of any hostilities. TBMD assets and intercept missiles (chemicals in the case of the ABL for lasing) are limited. As a result, TBMD systems face the risk of exhausting their inventory prior to the culmination of enemy TBM strikes.

This problem can be overcome with a real-time or near real-time TBM situational awareness (SA). By knowing TBM launch points, impact points, TBMD system status and availabilities, the ABMDC could take advantage of the ABL's and THAAD's overlapping coverage areas to efficiently conserve BMD assets. For example, the ABL at the outset of hostilities could be tasked to fire on TBMs launching from a certain region because they are feared to contain WMD thereby ensuring earliest engagement opportunity on the most threatening target. Through the TBMD SA picture, the ABMDC would be informed as to PAC-3 and THAAD battery inventories and whether they are reaching a critical point. The ABMDC could then retask the ABL to fire on TBMs directed at certain critical targets, saving the remaining missiles for "leakers".

Other TBMD Potential Synergies: A near real-time TBM situational awareness (SA) permits further advantages that are typical and already done in some JAOCs. First, such SA allows the effective and efficient engagement of TBMs by directing TBMD engagements while ensuring multiple shot opportunities and eliminating redundant engagements. For example, the ABMDC may direct a THAAD and/or PAC-3 battery to engage a particular target but ensure other PAC-3s detecting the TBM do not. This ensures a robust defense and ensures that a critically scarce resource is not wasted.

Second, TBM Situational Awareness permits repositioning of critical assets. For example, if launches unpredictably continue to occur from a remote region difficult to observe by ISR assets; the ABMDC can direct TBMD asset repositioning to cover these areas real-time. It can direct the mobile ABL to cover the threat launch areas or if speed is not critical, it could dictate a PAC-3 or THAAD unit to reposition against these threats. In addition, it could reposition scarce Passive Defense assets to unprotected areas.

Third, a near real-time SA provides specific warnings to theater commanders instead of the general warnings that are provided today. Space systems have been integrated to provide better warnings than were accomplished in Desert Storm where general warnings to the entire theater were all that was possible. Today space systems can narrow the focus on warning areas, but the warning from space systems are still not as effective as the ABL. With the ABL in theater, specific warnings could be provided which would limit the Passive Defense measures needing to be executed. In addition, with thorough analysis of the TBMD plan, the "leaker" risk areas can be determined in order to build and place Passive Defense measures in those areas.

Fourth, cueing of any of the TBMD systems improves engagement ranges and effectiveness. With cueing, the ABL can be prepared to engage the TBM immediately upon breaking out above the cloud deck. The THAAD and PAC-3 with cueing can slew their radars to the target and extend their radar detection ranges thereby extending their engagement capability. By engaging the target further away, these systems increase the possibility of the TBM falling back on the enemy or at least avoiding debris damage in friendly territory as was experienced in the Gulf War.

Other benefits can be derived from a near real-time TBM SA, but the above are the ones that provide the major benefits that are presently not realizable. These benefits could be gained

by the deployment of the new TBMD systems linked electronically (the link does not currently exist), but taken advantage by an ABMDC organization dedicated to TBMD. The current theater organization does not provide the flexibility to take advantage of these capabilities due to the fragmentation of TBMD responsibilities across Areas of Operations and Commanders.

TBMD Command and Control Recommendations

First, as discussed in the doctrine section, TBMD needs to be vertically integrated across the five elements of TBM Defense as it is horizontally integrated within each of the elements. Vertical integration through centralized planning and decentralized execution enhances Unity of Effort by developing a more cohesive plan, synchronizing and timing actions more effectively and using the scarce TBMD resources more effectively.

Second a real-time or near real-time SA needs to be implemented from the inherent capabilities that will be available in the current and planned TBMD systems for FY04. The Theater Commanders should demand this easy to implement capability. These systems because of their autonomous capability to engage TBMs have theater-wide TBM tracking abilities. The ABL will provide immediate detection, will develop a track and launch point and will provide an impact point at TBM burn-out (Impact point can only be provided after burn-out because burn-out determines the TBM's range). THAAD can then track the missile through part of the mid-course and terminal phases as PAC-3 also tracks the target through the terminal phase.

Third, the ABL should serve as the Command and Control platform to direct TBMD activities with or without a near real-time SA capability. Rationale: First, the ABL will be able to accomplish autonomously many of the advantages discussed with having a SA picture. The ABL in many instances will be first to detect and broadcast a TBM launch. Currently, no method exists to pass detailed ABL data. It can pass specific warnings, impact/launch points

and other less bandwidth intensive data, but it is easy to pass inventory and positional data to the ABL from the other TBMD systems. Second, its fine track capability will permit ISR tasking to detect and track launchers. Third, the ABL can cue other TBMD systems and it can coordinate TBM engagements. Lastly, and most importantly, the ABL engagement sequence requires it to fire within seconds of launch detection or let it go to other TBMD systems. The boost-phase engagement timelines do not permit external real-time inputs to lase or not to lase a threat. Currently, the ABL will have pre-planned targets, but to accomplish the real-time management of TBMD requires an authority on-board the ABL to make the decision.

Lastly, an ABMDC Air Control Element (ACE) should be placed on-board the ABL. The ACE would have sufficient authority and rank to manage and direct the TBMD battle to include authority to retask ISR assets for TBMD purposes, retasking/redirecting ground or air assets to attack time critical targets, direct fires upon targets of opportunity and lastly, to redirect other TBMD assets as required. Currently, an ACE is placed on JSTARS to direct immediate and/or time critical target taskings. An ABMDC ACE on-board the ABL would have similar authority to accomplish the mission per the JTF or JFACC's guidance. The guidance and apportionment of assets would be sufficiently clear to allow the effective and rapid execution of missions to enhance TBMD and air and missile defense as a whole.

Counter-Arguments

Many counterarguments and questions could be raised about the recommendations, but they fall predominantly under three main ideas: a) the JFACC already performs the missile defense role and a separate ABMDC could lead to an inefficient usage of counterair (as defined by the doctrine to include missile defense) assets;[21] b) the ABL will not have the on-station persistence required to perform the desired role, and c) should Aegis/TMD or a rear ground

station perform the Active Defense Command and Control role

Addressing question a, first, the JFACC has responsibility for Offensive Counterair and the new counterair joint doctrine includes air and missile defense.[22] The primary motivation for this is to ensure efficient use of limited assets. By placing the proposed ABMDC under the JFACC, the JFACC can still adjudicate the assets to protect the DAL and Critical Asset List as required. The advantages are that he can better perform his role of missile defense by having a ballistic missile defense cell/coordinator on his staff with the authority to develop a theater-wide plan. Currently, he really only has OCA in his toolkit. The ABMDC can provide an integrated plan using all available theater assets. In addition, the ABMDC provides focus to a strategic effect weapon and advocates TBMD requirements. Presently, this is done by the JTF staff, which is also attempting to balance numerous priorities.[23] The JFACC with an ABMDC will actually further centralize planning for counterair assets providing better unity of effort.

For counterargument b, the ABL fleet when fully realized should provide the persistence required to perform the role. The Air Force performs this similar role with other High Value Airborne Assets (HVAA) like the AWACS and JSTARS. These systems are of limited numbers but maintain virtually 24 hour vigilance in theater. The ABL though is planned to have less numbers at its Initial Operating Capability (IOC) than the other HVAA. Initially, it will only total 3 aircraft before building to a fleet of seven aircraft. Studies indicate seven aircraft is sufficient to provide two aircraft on-orbit 24 hours per day. It will be challenging to maintain one aircraft on-orbit though with just three aircraft.

Although this will be a risk area, the flexibility and mobility of the ABL make it desirable especially if the theater staff finds it difficult to link the TBMD systems together. ABL will have sufficient Command and Control capability to autonomously provide a

rudimentary TBM situational awareness that will allow it to manage the TBMD battle especially for engagement coordination and time critical targeting tasking.

Lastly, should the Aegis/TMD or a rear ground station instead of ABL perform the Active Defense coordination role? The answer is it depends. Realistically in a TBMD role, there will be very few, if any occasions, when the Aegis/TMD will engage a TBM in the ascent phase prior to ABL in the boost-phase (the ascent phase is late boost to mid-arc). As a result, the ABL will be the first system to decide whether it engages a target. The Aegis/TMD can serve as the TBMD coordinator better than the ABL in large land mass enemy territories combined with a maritime environment. A perfect example is a China-Taiwan scenario. China's large landmass limits the ABL's engagement capability and the maritime environment is more suited for the Aegis. Consequently, in those occassions, the JFACC will need to decide where better to place the ABMDC ACE. Of course, this assumes both systems are equal in command and control capabilities, etc.

A rear ground station--a TBMD JAOC--would be more suited as soon as the investment is accomplished to link the individual systems. When electronically linked, a rear ground station would have the capacity to integrate data from the various TBMD and ISR systems. This would provide a more complete SA and be the better place for TBMD coordination.

CONCLUSION/SUMMARY

The US will likely face a bigger TBM threat than we faced in Desert Storm. Although the use of TBMs are tactical actions that may or may not affect on-going military operations, especially when combined with WMD warheads they have a strategic effect. As a result, DoD has placed emphasis on countering this threat and JTF Commanders cannot minimize the importance of these terror weapons. Consequently, JTF Commanders need to focus on this

threat, and combined with the introduction of new TBMD systems, need to develop integrated plans across the five elements of TBMD that create synergistic effects against the enemy's TMD operations. To accomplish this, the JTF Commander should appoint an Area Ballistic Missile Defense Coordinator (ABMDC) who, working for the JFACC, can develop a synchronized TBMD plan which will be optimized for the entire counterair threat.

The PAC-3 combined with the new systems to be introduced in FY04; the ABL, Aegis/TMD and THAAD; will provide the Theater Combatant Commander with impressive new capabilities for Active Defense against TBMs. These systems, when linked to provide a near real-time TBM situational awareness through an ABMDC, can provide enormous TBMD benefits including: more effective attack operations against TBM launchers and infrastructure; better inventory management of TBMD assets; extended engagement ranges; repositioning of critical TBMD assets; and improved passive defense effectiveness.

Finally, the ABL should serve as the TBMD Active Defense Command and Control platform with an Air Control Element (ACE). The ABL, only using its autonomous capabilities for SA, will be able to direct the TBMD battle gaining many of the theater-wide benefits just mentioned including improved Attack Operations, inventory management, and cueing of other TBMD systems.

These recommendations will allow a JTF Commander to develop Unity of Command ensuring a united effort to defeat this "terror weapon" rendering useless the enemy's most prized weapon. By doing so, eliminate an asymmetric threat and emphasize further our overwhelming conventional power. Eventually, this may lead to the enemy being persuaded not to pursue these weapons or associated Weapons of Mass Destruction making the world a less threatening place for the US and its allies--especially our troops in the field.

Endnotes

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